



## UNITED STATES DEPARTMENT OF COMMERCE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/283, 192 04/01/99 KURABAYASHI

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 EXAMINER SHOSHO, C ART UNIT PAPER NUMBER1714  
**DATE MAILED:**

12/13/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

## Office Action Summary

Application No. 09/283,192	Applicant(s) Kurabayashi
Examiner Callie Shosho	Group Art Unit 1714

Responsive to communication(s) filed on Oct 20, 2000

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle 1035 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

### Disposition of Claim

Claim(s) 1-60 is/are pending in the application.

Of the above, claim(s) 37-60 is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1-36 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims 1-60 are subject to restriction or election requirement.

### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). 10

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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**DETAILED ACTION**

1. All rejections except for those described below and the drawing objections are overcome by applicants' amendment filed 10/20/00.

Further, it is acknowledged that the certified copies of the Japanese priority have been received.

This action is non-final due to the rejoinder of some claims previously subjected to restriction (see paragraph 2 below) as well as the use of a new reference, namely, Osumi et al. (U.S. 5,976,233), found upon updating the searches.

**Response to arguments regarding Restriction requirement**

2. Applicants' election with traverse of Group I (claims 1-18) in Paper No. 9 is acknowledged. The traversal is on the ground(s) that it would not be unduly burdensome to examine the claims together because they all relate to combinations including the ink of the elected claims.

The restriction has been ~~re-~~ considered to the extent that the ink cartridge claims of Group IV, i.e. claims 19-36, have been rejoined with group I.

However, with respect to the other claims, it is the examiner's position that there would be undue burden to examine the claims of Group I-IV given their different classification and/or that they have acquired a separate status in the art because of their recognized divergent subject matter. Undue burden was established in the Restriction Requirement set forth in the Office

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Action dated 4/20/00 (Paper No. 7). Undue burden is shown because each Group I, II, III, and IV directed to distinct inventions- ink composition and cartridge (Group I), ink set (Group II), image recording process (Group III), and recording unit and image recording apparatus (Group IV) requires a separate field of search as noted in paragraph 1 of the Office Action.

With respect to the process claims, Group III, Claims 45-52, applicant's remark with respect to rejoinder of the claims is noted, however, rejoinder will only be considered when the product claims are found allowable. See MPEP 821.04.

Thus, the requirement is still deemed proper.

3. Claims 37-58 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to non-elected inventions, the requirement having been traversed in Paper No. 9.

4. It is noted that newly added claims 59 and 60 have been joined with Group I

**Claim Rejections - 35 USC § 103**

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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6. Claims 1-6, 8-10, 12-15, 17, 19-24, 26-28, 30-33, 35, and 59-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (U.S. 5,851,274) in view of either Zou et al. (U.S. 5,622,548) or Sakuma et al. (U.S. 5,877,235).

The rejection is adequately set forth in paragraph 14 of the office action mailed 4/20/00 and is incorporated here by reference.

With respect to newly added claims 19-24, 26-28, 30-33, 35, it is noted that Lin discloses an ink jet ink printed using an ink jet printer (col.5, line 64 and col.6, lines 22-26). An ink jet printer, as is well known to one of ordinary skill in the art, contains cartridges to hold the ink, and therefore would have been obvious to one of ordinary skill in the art that Lin discloses an ink cartridge containing the above described ink. Evidence to support this position is found in col.3, line 20 of Lin which discloses that ink jet printers do indeed utilize cartridges which hold the ink prior to printing.

With respect to newly added claims 59-60, it is noted that since the combination of Lin in view of either Zou et al. or Sakuma et al. disclose an aqueous ink containing the same colorant as presently claimed, it therefore would have been obvious to one of ordinary skill in the art that the ink would intrinsically provide an image whose optical density is equivalent to that formed by an ink comprising pigment in the same amount, and thus, one of ordinary skill in the art would have arrived at the claimed invention.

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7. Claims 7, 16, 25, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of either Zou et al. or Sakuma et al. as applied to claims 1-6, 8-10, 12-15, 17, 19-24, 26-28, 30-33, 35, and 59-60 above, and further in view of Sacripante et al. (U.S. 6,025,412).

The rejection is adequately set forth in paragraph 15 of the office action mailed 4/20/00 and is incorporated here by reference.

8. Claims 11, 18, 29, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of either Zou et al. or Sakuma et al. as applied to claims 1-6, 8-10, 12-15, 17, 19-24, 26-28, 30-33, 35, and 59-60 above, and further in view of Hotomi et al. (U.S. 5,376,169).

The rejection is adequately set forth in paragraph 16 of the office action mailed 4/20/00 and is incorporated here by reference.

9. Claims 1-5, 9-10, 12-15, 17, 19-23, 27-28, 30-33, 35, and 59-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsumi et al. (U.S. 6,031,019) in view of Osumi et al. (U.S. 5,976,233).

Tsutsumi et al. disclose an ink composition which contains a colorant such as a pigment encapsulated into polymer particles. It is further disclosed that not all the colorant present in the ink is encapsulated into the polymer particles. Thus, it is clear that the ink of Tsutsumi et al. contains pigment and resin encapsulating a coloring material as presently claimed. It is further disclosed that the ink contains a dispersant (col.3, line 65-col.4, line 12 and col.4, lines 20-22).

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It is noted that Tsutsumi et al. disclose an ink jet ink printed using an ink jet printer (col.1, lines 4-5). An ink jet printer, as is well known to one of ordinary skill in the art, contains cartridges to hold the ink, and therefore would have been obvious to one of ordinary skill in the art that Tsutsumi et al. discloses an ink cartridge containing the above described ink. Evidence to support this position is found in col.15, lines 40-42 of Tsutsumi et al. which discloses that the ink jet printer does indeed utilize cartridges which hold the ink prior to printing.

The difference between Tsutsumi et al. and the present claimed invention is the requirement in the claims of (a) self-dispersing pigment and (b) no explicit disclosure that the encapsulated and non-encapsulated colorant have the same color.

With respect to difference (a), Tsutsumi et al. generically disclose the use of pigments. Osumi et al., which is drawn to ink jet inks, disclose the use of a self-dispersing pigment bonded with either cationic or anionic groups wherein the motivation for using such a pigment is that it has good dispersability and does not increase the viscosity of the ink even over long periods of time (col.3, line 35-col.5, line 4).

Further, it is noted that since the combination of Tsutsumi et al. in view of Osumi et al. disclose an aqueous ink containing the same colorant as presently claimed, it therefore would have been obvious to one of ordinary skill in the art that the ink would intrinsically provide an image whose optical density is equivalent to that formed by an ink comprising pigment in the same amount.

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In light of the motivation for using self-dispersing pigment disclosed by Osumi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such pigment in the ink jet ink of Tsutsumi et al. in order to produce a stable ink, and thereby arrive at the claimed invention.

With respect to difference (b), given that the ink contains colorant which is encapsulated in a resin and that some of the same colorant is present in the ink in non-encapsulated form, it therefore would have been obvious to one of ordinary skill in the art that the encapsulated and non-encapsulated colorant would have the same color, and thereby arrive at the claimed invention.

10. Claims 6-7, 11, 16, 18, 24-25, 29, 34, and 36 rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutsumi et al. in view of Osumi et al. as applied to claims 1-5, 9-10, 12-15, 17, 19-23, 27-28, 30-33, 35, and 59-60 above, and further in view of Yui et al. (U.S. 5,948,155), Sacripante et al. (U.S. 6,025,412), and Hotomi et al. (U.S. 5,376,169).

The difference between Tsutsumi et al. in view of Osumi et al. and the present claimed invention is the requirement in the claims of (a) specific type of dispersant, (b) specific type of resin, and (c) microcapsules.

With respect to difference (a), Yui et al. disclose the use of dispersants which have anionic or cationic functional groups in order to improve dispersion stability (col.5, line 42-col.6,

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line 28). Using this specific dispersant will produce an ink with good disperability, good image quality, good fixation, and reliability (col.2, lines 16-20).

In light of the motivation for using specific types of dispersant disclosed by Yui et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use this dispersant in the ink of Tsutsumi et al. in order to produce an ink with good disperability, good image quality, good fixation, and reliability. and thereby arrive at the claimed invention.

With respect to difference (b), Sacripante et al., which is drawn to ink composition, discloses the use of polymer encapsulated colorant wherein the polymer has attached hydrophilic groups which include anionic and cationic groups (col.4, lines 36-51). The motivation for using such a resin encapsulated colorant is to produce an ink with excellent waterfastness and high print quality (col.10, lines 7-8).

In light of the motivation for using specific resin encapsulated colorant disclosed by Sacripante et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use this resin encapsulated colorant in the ink of Tsutsumi et al. in order to produce an ink with excellent waterfastness and high print quality, and thereby arrive at the claimed invention.

With respect to difference (c), Hotomi et al., which is drawn to ink composition, discloses the use of microcapsule particles which contain dye or pigment (col.3, lines 54-57) in order to produce an ink with satisfactory color density, good dispersability, and no ink-emitting trouble (col.3, lines 50-53).

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In light of the motivation for using microcapsules disclosed by Hotomi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use microcapsules in the ink of Tsutsumi et al. in order to produce an ink which has satisfactory color density, good dispersability, and no ink-emitting trouble, and thereby arrive at the claimed invention.

11. Claims 1-4, 8-10, 12-15, 17, 19-22, 26-28, 30-33, 35, and 59-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osumi et al. (U.S. 5,976,233) in view of either Zou et al. (U.S. 5,622,548) or Sakuma et al. (U.S. 5,877,235).

Osumi et al. disclose an ink composition and ink cartridge which contains pigment such as carbon black chemically modified with anionic or cationic functional groups (col.3, line 35-col.5, line 4 and col.9, lines 27-29 and 37-39).

The difference between Osumi et al. and the present claimed invention is the requirement in the claims of a resin encapsulating a coloring material.

Zou et al., which is drawn to ink compositions, discloses the use of resin encapsulated colorant wherein the colorant is a pigment or dye (col.4, lines 33-36 and col.17, lines 1-30) in order to produce an ink with low bleed through, high color strength, and high image density (col.4, lines 5-7).

Alternatively, Sakuma et al., which is also drawn to ink compositions, discloses the use of resin encapsulated dye or pigment (col.2, lines 42-46, and col.4, lines 46 and 62-64) in order to

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produce an ink with improved waterfastness and fixation without impairing the color forming properties of the coloring material (col.1, lines 62-65).

Although there is no explicit disclosure in either Osumi, Zou et al. or Sakuma et al. that the colorant which is encapsulated in either Zou et al. or Sakuma et al. is the same color as the pigment disclosed by Osumi et al., it is within the skill level of one of ordinary skill in the art to recognize that a single ink should be made from one color in order to enhance the color strength and image density of the ink and that using a coloring material and pigment with different colors would result in an ink having uneven color, low color strength, and poor image density.

Further, it is noted that since the combination of Osumi et al. in view of either Zou et al. or Sakuma et al. disclose an aqueous ink containing the same colorant as presently claimed, it therefore would have been obvious to one of ordinary skill in the art that the ink would intrinsically provide an image whose optical density is equivalent to that formed by an ink comprising pigment in the same amount.

In light of the motivation for using resin encapsulating a coloring material disclosed by either Zou et al. or Sakuma et al., it therefore would have been obvious to one of ordinary skill in the art to use this resin encapsulated colorant in the ink of Osumi et al. in order to produce an ink with low bleed through, high color strength, and high image density or improved waterfastness and fixation, and thereby arrive at the claimed invention.

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12. Claims 7, 16, 25, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osumi et al. in view of either Zou et al. or Sakuma et al. as applied to claims 1-5, 9-10, 12-15, 17, 19-23, 27-28, 30-33, 35, and 59-60 above, and further in view of Sacripante et al. (U.S. 6,025,412).

The difference between Osumi et al. in view of either Zou et al. or Sakuma et al. and the present claimed invention is the requirement in the claims of resin encapsulated colorant wherein the resin contains anionic or cationic groups.

Sacripante et al., which is drawn to ink composition, discloses the use of polymer encapsulated colorant wherein the polymer has attached hydrophilic groups which include anionic and cationic groups (col.4, lines 36-51). The motivation for using such a resin encapsulated colorant is to produce an ink with excellent waterfastness and high print quality (col.10, lines 7-8).

In light of the motivation for using specific resin encapsulated colorant disclosed by Sacripante et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use this resin encapsulated colorant in the ink of Osumi et al. in order to produce an ink with excellent waterfastness and high print quality, and thereby arrive at the claimed invention.

13. Claims 11, 18, 29, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osumi et al. in view of either Zou et al. or Sakuma et al. as applied to claims 1-5, 9-10, 12-15,

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17, 19-23, 27-28, 30-33, 35, and 59-60 above, and further in view of Hotomi et al. (U.S. 5,376,169).

The difference between Osumi et al. in view of either Zou et al. or Sakuma et al. and the present claimed invention is the requirement in the claims of microcapsules.

Hotomi et al., which is drawn to ink composition, discloses the use of microcapsule particles which contain dye or pigment (col.3, lines 54-57) in order to produce an ink with satisfactory color density, good dispersability, and no ink-emitting trouble (col.3, lines 50-53).

In light of the motivation for using microcapsules disclosed by Hotomi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use microcapsules in the ink of Osumi et al. in order to produce an ink which has satisfactory color density, good dispersability, and no ink-emitting trouble, and thereby arrive at the claimed invention.

#### **Response to arguments**

14. Applicants' arguments with respect to the Harris et al. (U.S. 5,886,091) reference have been considered and are moot in view of the discontinuation of this reference as applied against the present claims.

15. Applicant's arguments filed 10/20/00 have been fully considered but, with the exception of arguments relating to the Harris et al. reference, they are not persuasive.

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Specifically, the applicant argues that:

- (a) Lin does not disclose a self-dispersing pigment.
- (b) No motivation to combine Zou et al. with Lin.
- (c) Sakuma et al. does not disclose a self-dispersing pigment.
- (d) Examples of Tsutsumi et al. do not teach self-dispersing pigments.

With respect to argument (a), it is noted that col.11, lines 57-62 of Lin discloses a self-dispersing pigment, i.e. pigment with chemically modified anionic or cationic groups.

With respect to argument (b), a reference may be relied on as a basis for rejection of an applicants' invention if it is "reasonably pertinent to the particular problem with which the inventor is concerned." A reasonably pertinent reference is further described as one which "even though it maybe in a different field of endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." Zou et al. is, therefore, a reasonably pertinent reference, because it teaches that resin encapsulated colorants function so as to produce an ink with low bleed through, high color strength, and high image density which is a function especially pertinent to the invention at hand.

With respect to argument (c), it is agreed that Sakuma et al. does not disclose a self-dispersing pigment. However, Sakuma et al. is used only to teach a resin encapsulated colorant.

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Therefore, therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, and in combination with the primary reference, discloses the presently claimed invention. If the secondary reference contained all the features of the present claimed invention, it would be identical to the present claimed invention, and there would be no need for secondary references.

With respect to argument (d), it is agreed that while Tsutsumi et al. discloses pigment, there is no explicit disclosure of self-dispersing pigment which is why Tsutsumi et al. is used in combination with Osumi et al. which teach the use of self-dispersing pigments in ink jet inks.

Further, although the examples of Tsutsumi et al. only utilize dyes, col.4, line 23 of Tsutsumi et al. discloses the use of pigments. Further, “applicant must look to the whole reference for what it teaches. Applicant cannot merely rely on the examples and argue that the reference did not teach others.” In re Courtright, 377 F.2d 647, 153 USPQ 735,739 (CCPA 1967). Further, “nonpreferred disclosures can be used. A nonpreferred portion of a reference disclosure is just as significant as the preferred portion in assessing the patentability of claims.” In re Nehrenberg, 280 F.2d 161, 126 USPQ 383 (CCPA 1960).

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16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie Shosho whose telephone number is (703) 305-0208. The examiner can normally be reached on Mondays-Thursdays from 7:00 am to 4:30 am. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

*CS*

Callie Shosho  
12/7/00

*Vasu Jagannathan*